



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/527,404	03/11/2005	Masahiko Hori	12054-0034	4835
------------	------------	---------------	------------	------

22902	7590	11/29/2006
-------	------	------------

CLARK & BRODY  
1090 VERMONT AVENUE, NW  
SUITE 250  
WASHINGTON, DC 20005

EXAMINER
----------

VANOY, TIMOTHY C

ART UNIT	PAPER NUMBER
----------	--------------

1754

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/527,404

**Applicant(s)**

HORI, MASAHIKO

**Examiner**

Timothy C. Vanoy

**Art Unit**

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 5 and 6 is/are allowed.
- 6) ☒ Claim(s) 2, 4 and 7 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date March 11, 2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

Art Unit: 1754

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The sole reference cited on the PTO-1449 date-stamped Nov. 23, 2005 has been lined through because it lacks the country publication data for the reference. This reference has been considered and cited on a PTO-892 form with the country of the reference also provided on the PTO-892. A copy of this reference (i. e. Japan Patent Document No. 2000-128,656 A) has not been provided to the applicant because the applicant himself supplied this reference.

### ***Claim Objections***

a) In claims 2 and 3, the dimensions of  $\text{m}^2/\text{cm}^3$  is questioned for reporting the specific surface area. It appears that it may have been the applicant's intention to use the dimensions of  $\text{m}^2/\text{g}$  to report the surface area.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1754

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) The term "closely" in claim 7 is a relative term, which renders the claim indefinite. The term "closely" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Japan Patent Document No. 2000-128,656 A (hence "JP-656").

The English abstract of JP-656 describes a porous titanium dioxide sintered body having a pore porosity of  $\geq 50$  volume percent and a fine pore diameter distribution having a D10/D90 ratio of  $\leq 3$  wherein D10 and D90 are fine pore diameters corresponding to an accumulated 10% diameter and an accumulated 90% diameter, respectively, from the large diameter side of the accumulated fine pore distribution. The first page in the text of JP-656 seems to set forth that the sintered body has a surface area ranging from 0.1 to 80 m<sup>2</sup>/g.

Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by the English abstract of Japan Patent Document No. 7-233,469 A (hence "JP-469").

JP-469 describes a method for producing a oxide sintered compact by hot-pressing a powder of titanium dioxide having a grain diameter of 0.05 to 40 micrometers at a temperature of 1,000 to 1,300 °C and a pressure of 50 to 100 kg/cm<sup>2</sup> (i. e. 4.9 to 9.8 MPas.).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

Art Unit: 1754

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/64638 A1 to Fray et al.

Pg. 4 lines 25 et seq. in the Fray et al. publication describes a method for removing X (which may be oxygen) from a metal compound  $M^1X$  (which may be  $TiO_2$ ) by electrolysis in a melt of  $M^2Y$  (which may be  $CaCl_2$ ).  $M^1X$  is a conductor and is used as the cathode. Example 1 on pg. 9 sets forth an electrolysis temperature of 950 °C.

Claims 1 and 3 have not been rejected under either 35USC102 or 35USC103 because Japan Patent Document No. 2000-128,656 A does not teach or suggest that the sintered compact has a hardness of 60 (HV) or higher.

Claims 5 and 6 have not been rejected under either 35USC102 or 35USC103 because Japan Patent Document No. 7-233,469 A does not teach or suggest the claimed use of titanium suboxide to make the sintered compact.

The following references are made of record:

U. S. Patent 2,511,216 disclosing a method for making electrical resistors by compressing and heating titanium dioxide powder, and

Japan Patent Document No. 2000-119,075 A disclosing a titanium oxide sintered compact.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/527,404

Page 7

Art Unit: 1754

*Timothy C Vanoy*  
Timothy C Vanoy  
Primary Examiner  
Art Unit 1754

tv